

IN THE CLAIMS:

Please cancel claim 6.

*B1* 2. (Twice Amended) In a laser scanning microscope with an AOTF (acousto-optic tunable filter) in the laser input-coupling beam path, an improvement comprising:  
a temperature gauge being provided in one of the environment of the AOTF and the vicinity thereof and connected therewith;  
means for one of cooling and heating of the AOTF and its environment; and  
wherein said means for one of heating and cooling includes regulation of said AOTF and its environment to a constant temperature value.

*B2* 7. (Once Amended) The laser scanning microscope according to claim 2, wherein the temperature gauge is connected to one of heating and cooling means by an electronic control for regulating the temperature.

9. (Once Amended) In a laser scanning microscope with an AOTF (acousto-optic tunable filter) in the laser input-coupling beam path, an improvement comprising:  
a temperature gauge being provided in one of the environment of the AOTF and the vicinity thereof and connected therewith;  
means for one of cooling and heating at least one of the AOTF and its environment; and  
wherein said means for one of heating and cooling includes regulation of said at least one of the AOTF and its environment to a constant temperature value and wherein said AOTF is driven by an optimized AOTF frequency to provide a constant laser output in the first order of diffraction.